



U.S. FISH AND WILDLIFE SERVICE TRANSMITTAL SHEET

PART 713 FW 1-5	SUBJECT Fisheries Aquatic Animal Health Policy Overview Aquatic Animal Health Operations Exotic Aquatic Animal Disease Eradication Plan Aquatic Animal Health Assistance to Non-Service Entities Special Case Aquatic Animal Movements and Controlled Propagation Programs	RELEASE NUMBER 440
ORIGINATING OFFICE Division of the National Fish Hatchery System		DATE March 3, 2004

EXPLANATION OF MATERIAL TRANSMITTED:

These chapters are being reissued to revise the name of the U.S. Fish and Wildlife Service Handbook of Aquatic Animal Health Procedures and Protocols.


DIRECTOR

FILING INSTRUCTIONS:

Remove:

713 FW 1, 11/25/03, FWM 433
713 FW 2, 11/25/03, FWM 433
713 FW 3, 11/25/03, FWM 433
713 FW 4, 11/25/03, FWM 433
713 FW 5, 11/25/03, FWM 433

Insert:

713 FW 1, 03/03/04, FWM 440
713 FW 2, 03/03/04, FWM 440
713 FW 3, 03/03/04, FWM 440
713 FW 4, 03/03/04, FWM 440
713 FW 5, 03/03/04, FWM 440

Chapter 5 Special Case Aquatic Animal Movements and Controlled Propagation Programs 713 FW 5

5.1 What is the purpose of this chapter? This chapter provides guidelines for the generation of fish health recommendations to Fish and Wildlife Service facilities and personnel involved in the movement and rearing of special case aquatic animals. This chapter attempts to balance the resource need for imperiled aquatic animal propagation and our declared position on fish health activities (713 FW 1).

5.2 How does this chapter and its associated chapters (713 FW 1-4) concur with other policies?

A. The joint Fish and Wildlife Service and National Marine Fisheries Service policy regarding controlled propagation of species listed under the Endangered Species Act (Joint Policy) was published September 20, 2000, in the Federal Register 65 (186):56916-56922. The Joint Policy specifies that health risks be addressed for any captive propagation program (CPP) and states that the controlled propagation of threatened and endangered species will be "conducted in a manner that takes all known precautions to prohibit the potential introduction or spread of diseases and parasites into control environments or suitable habitat." The term "potential" is interpreted here as a necessary conservative approach to health risks associated with any CPP action.

B. This chapter and its associated worksheets (FWS Forms 3-2261 and 3-2262) document the health risks associated with the movement of any imperiled species into or from a Service (or other) facility. In addition, this policy is intended to facilitate the formulation of recommendations associated with the assigned health risk. In the case of the latter, the completed worksheets will assist the Fish Health Center (FHC) Director, any captive propagation program (CPP) team, and the Regional Director/Manager, California/Nevada Operations Office (CNO) in determining the animal-rearing requirements (i.e., level of isolation rearing) minimally required for the proposed animal's movement.

B. Procedures in this chapter are consistent with risk assessment definitions and concepts described in either the Office International des Epizooties' (OIE), International Aquatic Animal Health Code, and/or the U.S. Environmental Protection Agency's (EPA) Framework for Ecological Risk Assessment (EPA/630/R-92/001).

C. In light of the potential disease risks associated with such animal movements and inherent limits to the number of animals that can be sampled for testing, other methods must be used to assess the risks associated with such movement onto and/or from Service (or other) facilities. This chapter establishes guidelines for Service aquatic animal health officials to assess and document the risks associated with such CPP's, without unduly jeopardizing the animal population in question, the health of other animals on the associated Service (or other) facilities nor the ecosystem into which the subject population is moved at some later date.

5.3 What is the rationale and background associated with risk assessment procedures?

A. Background. There are historical examples of introduced pathogen damage to aquatic animals. There are numerous documented cases where aquatic animal pathogen introductions have had significant ecological and economic impacts. Several disease or pathogen examples include: furunculosis, gyrodactylids, whirling disease, and crayfish plague.

B. Endangered Species Act. In the case of proposed movements of threatened or endangered species, great care must be taken by the facility manager to avoid their exposure to pathogens at the rearing facility, as well as the threat of pathogen movements to native populations via the reintroduction of the captive animals.

C. Rationale. Quantitative risk assessment (probability models) can be performed when a given stressor (physical, biological, chemical, etc.) is evaluated and sufficient data on the stressor are available. It is unlikely that CPP health risk assessments will have the necessary focus (a single stressor/pathogen) or sufficient pathogen data for a quantitative approach. Therefore, the following guidance will permit aquatic animal health officials to formulate a qualitative risk assessment with a rating of either high, moderate, or low risk being assigned to a given animal population's movement. This rating will be used in formulating recommendations regarding the subject animal movements.

5.4 What are the specific procedures recommended to assess the risks involved in the movement and rearing of special case aquatic animals, including imperiled species?

A. General Responsibilities. The FHC Director, with input from other members of a CPP team, will assign a risk classification (high, moderate, low) to both movement of the CPP species onto a Service (or other) facility and to its later reintroduction to the wild. Final written recommendations from the FHC Director to the Regional Director/CNO Manager will include both the assigned risk classification(s) and any other unique factors identified by the FHC Director and/or the CPP team.

B. Risk Classification Scheme. The risk classification(s) developed by the FHC Director, through the use of these guidelines, will be based on several general categories of information.

(1) Data confidence. Includes knowledge about the subject animals and diagnostic tests used for diseases or pathogens, as well as the extent and quality of available information.

Chapter 5 Special Case Aquatic Animal Movements and Controlled Propagation Programs 713 FW 5

(2) Risk Mitigation Measures. Includes information about facility characteristics, our ability to treat for a given pathogen, the level of pathogen testing, and our ability to obtain appropriate samples.

(3) Pathogen Prevalence Data. Includes pathogen prevalence information from the facility, from the geographic region/watershed where the CPP species originated, and from the geographic region/watershed where the CPP species will be introduced or reintroduced.

5.5 How are individual risk assessments uniformly documented? This is accomplished by using standard Risk Assessment Worksheets. It is imperative that a risk assessment, conducted by the FHC Director and CPP team for the movement of any CPP species vis-à-vis animal health, be completed with as much uniformity and consistency as possible. Hence, you must use one of two standardized risk assessment worksheets (FWS Form 3-2261 or 3-2262) (see the U.S. Fish and Wildlife Service Handbook of Aquatic Animal Health Procedures and Protocols (Handbook)) for that purpose. The specific worksheet used will depend on the direction of the CPP species' movement.

5.6 What procedures must be followed for the rearing of CPP species to minimize aquatic animal health risks at rearing facilities and in ecosystems into which such animals may be released?

A. Worksheets as Basis for Recommendations. The worksheets (FWS Forms 3-2261 and 3-2262) are designed to document the health risks associated with the movement of CPP species and to help formulate recommendations associated with the assigned health risk. In the case of the latter, the worksheet and its generated Health Risk Score and Risk Classification (see Worksheets) will assist the FHC Director, CPP team, and the Regional Director/CNO Manager in determining the level of isolation rearing minimally required for the proposed CPP species' movement.

B. FHC Director's Early Involvement. Key to successful rearing/holding of any CPP species is appropriate facilities to minimize or negate risks associated with pathogens. The guidelines herein defined are designed to consistently identify the appropriate facilities for such containment. It is imperative that the FHC Director be included in the planning, implementation, and evaluation stages of all aquatic animal CPPs conducted at Service facilities or Service-contracted facilities, such that appropriate rearing requirements are incorporated into the Programs.

C. Isolation Level Rationale. Several types of isolation culture facilities, to be used in a CPP, are described below. Their differences are based on their degree of control over all aspects of aquatic animal rearing. The purpose of isolated rearing units is twofold; first, to limit the movement of pathogens (if any) from the CPP species to other populations during their rearing/holding phase, and second,

during the same period, to limit the entry of new pathogens from other populations to the CPP species. Creating effective isolation areas where water and air contamination sources are contained in discrete units allows for effective identification, treatment, and control of disease outbreaks before the infection can spread throughout the facility or environment. To assign an Isolation Level recommendation, the FHC Director will utilize the Health Risk Score from FWS Form 3-2261(Considerations or Factors Relative to Movements into a Facility) to assist in assigning a Risk Classification, input from other CPP team members, and his/her best judgment to determine what level of isolation rearing will be required.

D. Recommended Isolation Levels. Isolation rearing recommendations are based partially on the Health Risk Score calculated using FWS Form 3-2261 and Exhibit 1. Use Exhibit 1 to equate a given Health Risk Score to a Risk Classification and finally to a Recommended Isolation Level. The range of scores is for comparative modeling and should be used as a factor in the final recommendation.

E. Recommendations and rationale for determining isolation duration. As in the case of recommendations relative to the movement of CPP species onto a facility, recommendation regarding movements out of isolation are based on a number of factors. To facilitate formulating such recommendations, the FHC Director will develop a Health Risk Score and associate Risk Classification by using FWS Form 3-2262 (Considerations or Factors Relative to Movements from a Facility) (see the Handbook). Similar to when the FHC Director uses FWS Form 3-2261, the range of Pathogen Risk Scores generated from FWS Form 3-2262 is for comparative modeling and should be used as a factor in the final recommendation. Exhibit 2 represents guidelines that are subject to modification as field experience in its use dictates. Additional guidance, vis-à-vis movements from a facility, is provided in the Handbook.

F. Isolation Level Descriptions and Definitions.

(1) Level A: a quarantine facility with the following characteristics:

(a) Completely enclosed, locked structure with a given room or space allotted to only one CPP population. Water is either supplied by a well or is disinfected (ozone/ultraviolet light).

(b) Operated, by a written standard operating plan, with the highest level of sanitation, including, but not limited to: restricted personnel access; dedicated equipment, such as brooms, nets, etc.; dedicated external garments, such as boots and rain gear; disinfection foot baths; and landfill disposal of carcasses.

(c) Effluent is disinfected by ultraviolet light sterilization or strong oxidation (i.e., chlorination system recommended, see Handbook), or is sent into a documented "dead-end" location which cannot enter facility water supplies or receiving waters (e.g.; leach field distant from facility).

Chapter 5 Special Case Aquatic Animal Movements and Controlled Propagation Programs 713 FW 5

(2) Level B: same as Level A except effluent is not disinfected prior to contact with a receiving water. Effluent from this facility should not contact any water supplies at the facility.

(3) Level C: same as Level B except multiple populations or groups may be housed in the same containment building, and there is no restriction on the facility water supply. It is recommended that some form of airborne pathogen separation between populations (such as curtains), as well as unit-specific equipment, be used in this type facility.

(4) Intensive: open facility with adjacent rearing units that allow for direct observation and husbandry of CPP species (e.g., standard hatchery with raceways and tanks). Typically animal densities are high, and rearing units are in proximity to each other.

(5) Extensive: open facility with limited ability for observation and husbandry of CPP species (e.g. earthen pond systems). Typically animal densities are low to moderate, and rearing units are not in close proximity to each other.

G. Effluent disinfection. A major design limitation for a Level A facility is the volume of effluent which can be effectively disinfected. This consideration will dictate the maximum biomass (and related flow) that can be reared in the facility unless water recirculation/biofiltration is employed. The effluent disinfection system should be safe to operate, simple, redundant, monitored, and relatively fail-safe (e.g., linked to inflow).

H. Pathogen sampling.

(1) As per Exhibit 1, 713 FW 2, the FHC Director will need to determine the best method(s) for pathogen detection for a given CPP species and document the methods in the Fish Health Management Plan. The Handbook describes a number of non-lethal methods.

(2) The FHC Director may diagnose some bacterial and parasitic pathogen infections using bioassays; pathogen-free animals are held in the effluent of CPP species and any pathogens subsequently detected on/in the bioassay animals are assumed to have been transferred from the CPP species.

(3) Lethal sampling of moribund CPP animals by either the facility personnel or aquatic animal health officials for the analysis of appropriate samples is a mandatory component of the health management effort.

(4) It is essential that the Health Management Plan includes protocols for the proper pathogen sampling of moribund animals by facility staff. Facility staff must be trained to identify behavioral and external signs of disease, empowered to lethally sample or ship sick animals to the Fish Health Center, and be provided the necessary materials to perform these activities.

**RISK CLASSIFICATION AND ISOLATION RECOMMENDATIONS
FOR AQUATIC ANIMALS MOVING ONTO FACILITIES BASED ON HEALTH RISK
SCORES**

Health Risk Score	Risk Classification	Recommended Isolation Level
250 - 376	High	Level A - quarantine for entire rearing cycle
150 - 249	Moderate	Level B - restricted rearing conditions for a defined period to allow for testing
<150	Low	Level C - Standard Intensive, Extensive

**RISK CLASSIFICATION AND ISOLATION RECOMMENDATIONS
FOR AQUATIC ANIMALS MOVING OFF OF FACILITIES BASED ON HEALTH RISK
SCORES**

Health Risk Score	Risk Classification	Recommended movement
125 - 175	High	None. Movement to another isolation facility or to waters of origin.
81 - 124	Moderate	Only that restricted to facilities or waters that have written approval of attending FHCD.
<80	Low	Unrestricted movement out of isolation.